

Listing of Claims

The following listing of claims is intended to supercede all previously filed listings of claims. Changes are shown with deletions in ~~striketrough~~ and additions underlined.

Kindly enter the following amendments to the claims:

Claim 1-30 (Cancelled).

Claim 31 (New). A method for storing and updating information in a network having n hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within an n th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said related set of keys includes each key associated with each non-leaf node on said corresponding path from said leaf node to said root node wherein said corresponding set of keys associated with each non-leaf node includes $2^m - 1$ keys where m is the maximum number of child nodes that may be associated with each non-leaf node.

Claim 32 (New). A method for storing and updating information in a network having n hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within ~~in~~ an n th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said corresponding set of keys associated with each non-leaf node includes $2^m - 2$ keys where m is the maximum number of child nodes that may be associated with each non-leaf node.

Claim 33 (New). A method for storing and updating information in a network having n hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within an n th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said related set of keys provided to each leaf node includes $(n-1) * (2^m - 1)$ keys where m is the maximum number of child nodes that may be associated with each non-leaf node.

Claim 34 (New). The method of claim 31 wherein each non-leaf node is associated with more than two child nodes.

Claim 35 (New). The method of claim 31 wherein each non-leaf node is associated with the same number of child nodes.

Claim 36 (New). The method of claim 31 further comprising the step of defining an internal node positioned on said corresponding path between said root node and a first of said leaf nodes, said internal node being associated with a hierarchal level between said first level and said n th level.

Claim 37 (New). The method of claim 31 further comprising the step of identifying a specific one of said leaf nodes as a compromised leaf node.

Claim 38 (New). The method of claim 37 further comprising the step of removing at least a portion of said corresponding path associated with said compromised leaf node.

Claim 39 (New). The method of claim 37 comprising the step of marking a key in said set of keys related to said compromised leaf node as a compromised key.

Claim 40 (New). The method of claim 39 further comprising the step of sending a message from said root node to a non-compromised leaf node using a key that has not been marked as a compromised key.

Claim 41 (New). The method of claim 31 further comprising the step of identifying each of one or more specific leaf nodes as a compromised leaf node.

Claim 42 (New). The method of claim 41 further compromising the step of removing at least a portion of said path between each of said one or more compromised leaf nodes and said root node.

Claim 43 (New). The method of claim 41 further comprising the step of marking a key in said set of keys related to each of said one or more compromised leaf nodes as a compromised key.

Claim 44 (New). The method of claim 43 further comprising the step of sending a message from said root node to a non-compromised leaf node using a key that has not been marked as a compromised key.